

## SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F21-R-45

**Name:** Owens Lake

**County:** Perkins

**Legal description:** T 17 N, R 14 E, Sec. 4

**Location from nearest town:** 3 miles east, 4 miles south of Bison, SD

**Dates of present survey:** July 20-21, 2012

**Date last surveyed:** July 12-13, 2010

**Management classification:** Warmwater semi-permanent

**Primary Species:** (game and forage)

1. Black Bullhead
2. Northern Pike
3.

**Secondary and other species:**

1. Largemouth Bass
2. Yellow Perch
3. Bluegill

### PHYSICAL CHARACTERISTICS

**Surface Area:** 96 acres;

**Watershed:** 57,000 acres

**Maximum depth:** 15 feet;

**Mean depth:** 6.3 feet

**Lake elevation at survey (from known benchmark):** At full pool

#### **Ownership of lake and adjacent lakeshore property:**

Most all of the land around Owens Lake is owned by the Department of Game, Fish and Parks and is managed as a Game Production Area.

#### **Fishing Access:**

Owens Lake has boat access with a rough, plank boat ramp on the south side. Shore access is limited by heavy vegetation around the shoreline and heavy submergent vegetation around the entire lake.

#### **Observations of Water Quality and Aquatic Vegetation:**

Emergent vegetation was present in the extremely clear water in depths under 7 feet deep. Approximately seventy percent of the shoreline is covered by cattails or reeds. Department personnel identified no pollution problems during the 2012 survey.

#### **Observations on conditions of structures (i.e. spillway, boat ramps, roads, etc.):**

The dam spillway appeared in good condition. The boat ramp is a rough concrete plank ramp which is starting to be undercut by wave action in spots.

### MANAGEMENT OBJECTIVES

**Objective 1.** Maintain moderate densities of Yellow Perch and Bluegill and PSD's  $\geq 30$ .

**Objective 2.** Maintain a mean trap net CPUE of stock-length Black Bullhead <100 and PSD between 30 and 60.

**Objective 3.** Increase Largemouth Bass and Northern Pike numbers to moderate to high densities to keep Black Bullhead and other panfish densities and size structure within management objective ranges.

### **BIOLOGICAL DATA**

A lake survey was conducted on Owens Lake during July 20-21, 2012. Sampling consisted of one experimental gill (gill) net (45.7 m [150 ft] long and 1.8 m [6 ft] deep with six 7.6 m [25 ft] panels of bar mesh sizes: 12.7 mm [0.5 in], 19.1 mm [0.75 in], mm [1.25 in], 38.1 mm [1.5 in], and 50.8 mm [2.0 in]) net and four modified fyke (trap) nets consisting of a 1.3 X 1.5 m frame, 19.1 mm (0.75 in) mesh and a 1.2 X 23 m (3.9 X 75.5 ft) lead (Figure 1). Two species of fish, Black Bullheads and Northern Pike, were collected during sampling (Tables 1 and 2). Discussion on fish species follows and completes this report.

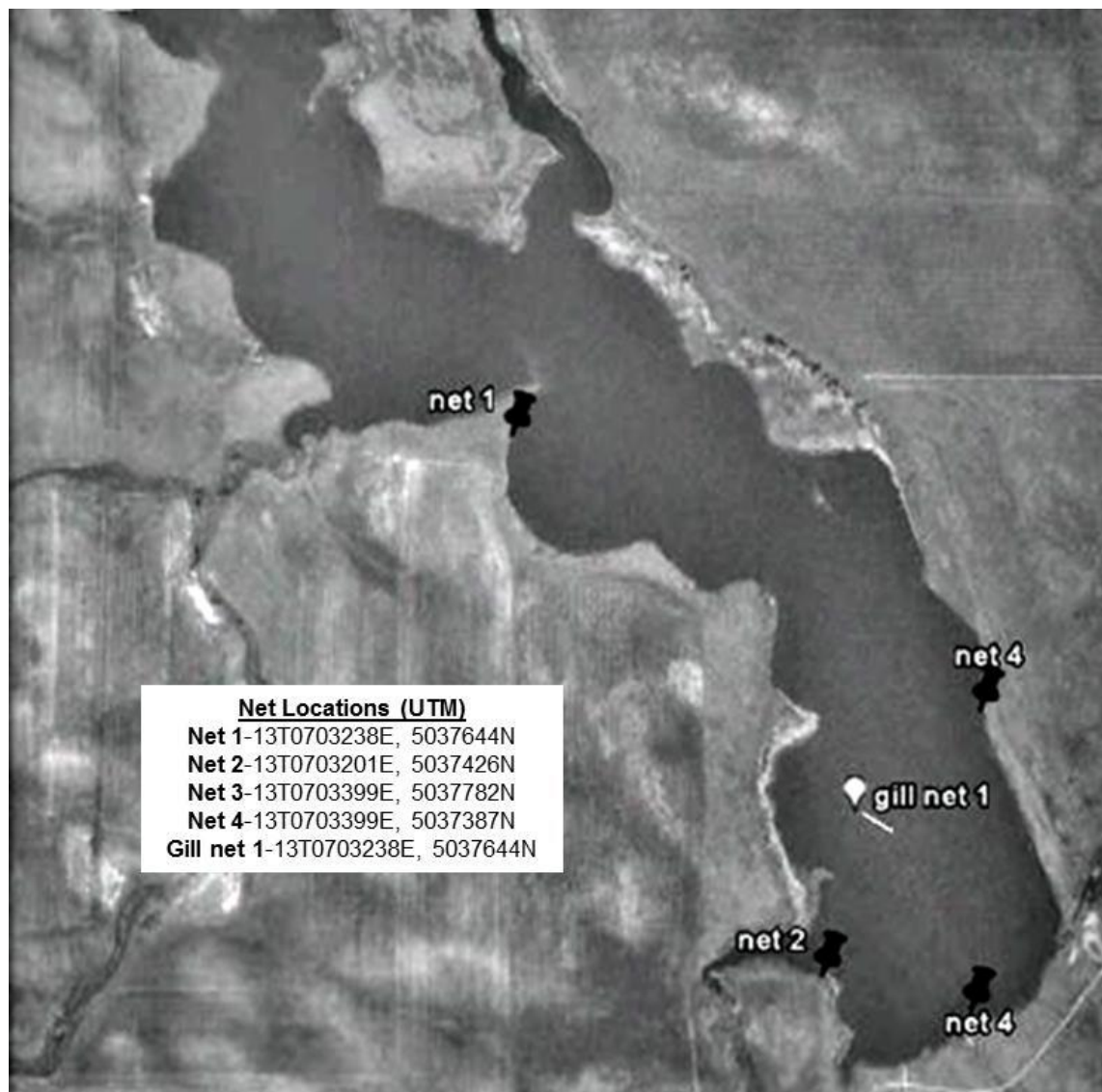


Figure 1. Locations, with GPS coordinates, of the experimental gill net (gill net) and modified fyke nets (net) during the fisheries survey of Owens Lake, Perkins County, South Dakota, 2012.

Table 1. Species, number captured (N), catch per unit effort (CPUE), catch per net night of stock-length fish (CPUE-S), proportional stock density (PSD), proportional stock density of preferred-length fish (PSD-P) and relative weight of stock length and greater fish ( $Wr \geq S$ ) Catch data from all fish species collected in one experimental gill net in Owens Lake, Perkins County, South Dakota, July 20-21, 2012. CPUE values with 80% confidence intervals in parentheses. PSD, PSD-P and  $Wr \geq S$  values with 90% confidence intervals in parentheses

Species	N	CPUE	CPUE-S	PSD	PSD-P	$Wr \geq S$
Black Bullhead	91	91.0	91.0	21 (7)	0	109.7 (1.4)
Northern Pike	9	9.0	8.0	75 (31)	0	98.2 (3.1)
Totals	100					

Table 2. Species, number captured (N), catch per unit effort (CPUE), catch per net night of stock-length fish (CPUE-S), proportional stock density (PSD) , proportional stock density of preferred-length fish (PSD-P) and relative weight of stock length and greater fish ( $Wr \geq S$ ) in four modified fyke nets in Owens Lake, Perkins County, July 20-21, 2012. CPUE values with 80% confidence intervals in parentheses. PSD, PSD-P and  $Wr \geq S$  values with 90% confidence intervals in parentheses

Species	N	CPUE	CPUE-S	PSD	PSD-P	$Wr \geq S$
Black Bullhead	267	66.8 (25.3)	65.3 (24.9)	37 (5)	2 (2)	108.8 (4.2)
Northern Pike	19	4.8 (5.2)	4.8 (5.2)	89 (12)	5 (9)	94.3 (4.0)
Totals	286					

### Black Bullheads

In 2012, Black Bullhead were the most abundant species sampled in Owens Lake, with a gill net catch per unit effort (CPUE) of 91 and trap net CPUE of 66.8 (Tables 1 and 2). Stock indices were below within objective levels with a proportional stock density (PSD) of 37 from the trap net sample. No aging was completed but a large number of fish around quality size (Figure 2), as there was a high density of age-1 fish in the fall of 2010. Black Bullhead condition was excellent with average relative weight for stock length and larger fish ( $Wr \geq S$ ) of 109. Condition and growth appear to be adequate to provide a quality fishery.

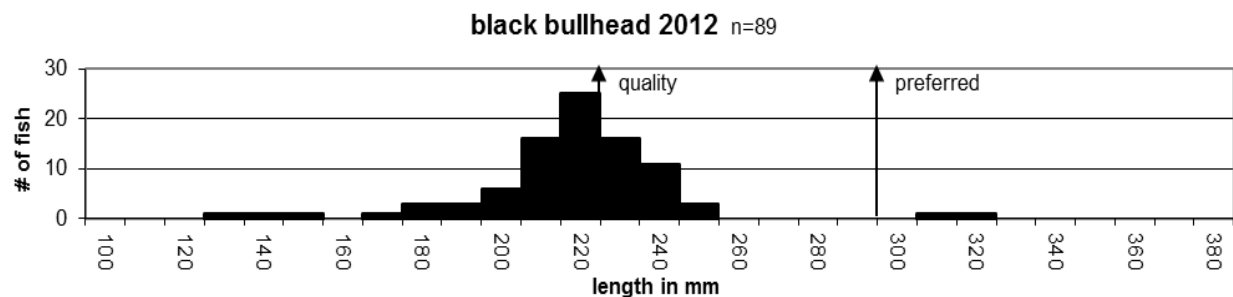


Figure 2. Length frequency histogram for Black Bullhead from Owens Lake, Perkins County, South Dakota, 2010, 2012.

## Northern pike

The size structures of Northern Pike, along with recruitment, were unexpected as the lake was recently stocked with fry in the spring of 2010, following a partial winterkill in 2008. The length frequency histogram indicates northern pike natural reproduction in successive years. In 2010, the gill net caught eight fish while trap net CPUE was 11 per net. In 2012, gill net CPUE was nine and trap net CPUE was 4.8 (Tables 1 and 2). Size structure increased from a PSD of 0 in 2010 to 89 this survey. Fish condition was satisfactory with a mean  $W\geq S$  of 94.3. Only one fish was sampled under stock length indicating low levels of recruitment which is probably related to low water levels and lack of suitable spawning habitat (Figure 3).

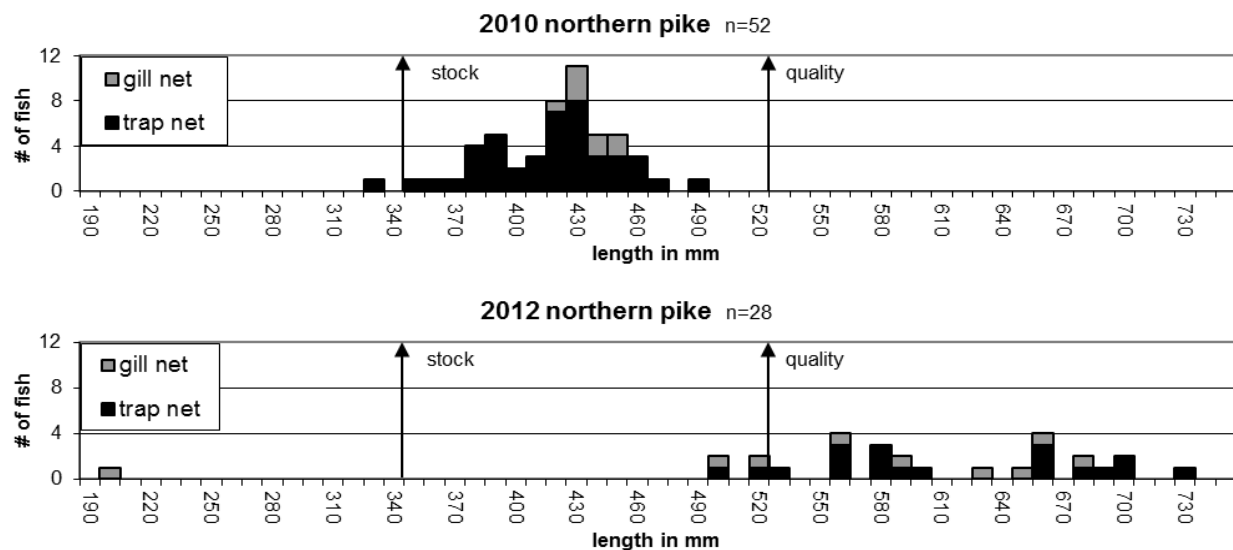


Figure 3. Length frequency histograms for Northern Pike sampled in experimental gill (gill net) and modified fyke (trap net) nets from Owens Lake, Perkins County, South Dakota, 2010, 2012.

## RECOMMENDATIONS

1. Resurvey in 2014 to check fish populations and see if Bluegill and Largemouth Bass introductions were successful.

## APPENDIX

Appendix A. Stocking history, including year, number stocked, species and size of fish stocked into Owens Lake, Perkins County, South Dakota, 1995-2012.

Year	Number	Species	Size
1995	197	Northern Pike	Adult
1996	16,230	Northern Pike	Adult
1997	32,000	Northern Pike	Fingerling
2005	368	Yellow Perch	Adult
2009	250	Yellow Perch	Adult
2010	97,600	Northern Pike	Fry
	5,560	Largemouth Bass	Fingerling
2012	572	Yellow Perch	Adult
	835	Bluegill	Adult
	320	Largemouth Bass	Adult